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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,800	03/23/2001	David A. Markle	3521.147	5821

7590 04/02/2004
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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,800

Applicant(s)

MARKLE, DAVID A.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Response filed 2/2/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 14-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 7-13 is/are objected to.
- 8) ☒ Claim(s) 1-32 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

EX PARTE QUAYLE ACTION

This application is in condition for allowance except for the following formal matters:

1. IN THE ABSTRACT

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required.

2. IN THE DRAWINGS

This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. The application is now under condition for allowance, applicant is required to submit new formal drawings.

3. IN THE CLAIMS

a. Applicant's election with traverse of group II (claims 7-13) in Paper No. February 2, 2004 is acknowledged. The traversal is on the ground(s) that "independent claim 1 is a subset of independent claim 7 and it is the opinion of the applicant that all of claims in all of groups

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represent the same invention with the invention being claimed in similar ways”. This is not found persuasive because a review of the record demonstrated that the Examiner has followed restriction practice as set forth on MPEP 806.05(d). The claims (group I-III and V) are related as sub-combinations disclosed as usable together. Applicant argues that “what is called for in claim 1 corresponds directly with steps (d) and (e) of claim 7”. The Examiner respectfully disagrees with the applicant since while claim 1 is related to a method of forming a high resolution image of a pattern formed on an image transducer comprising an array of programmable microelements and recites three steps of “establishing $n=2\dots$ ”, “sequentially pulse-exposing...” and “superimposing the plurality of images to form the high-resolution image”. Claim 7 is explicitly related to a method of forming an image having edge placement accuracy to a small fraction of a pixel using an image transducer having coarse pixels and recites steps of (a), (b), (c), (d) which is “creating n different binary patterns based on the binary numbers $N\dots$ ” and (e) which is “imaging the n patterns in sequence by pulse-exposing ...”. Firstly, it the Examiner’s position that there are no common technical features between the groups I and II, as argued. Secondly, whether the group I corresponds directly with steps (d) and (e) of claim 7 or not, is not germane to whether a restriction is proper. The issue is whether the claims are independent and distinct, and the Examiner has demonstrated that they are. The requirement is still deemed proper and is therefore made FINAL.

b. This application is in condition for allowance except for the presence of claims 1-6, and 14-32 to an invention non-elected with traverse in Paper No. February 2, 2004. Applicant is given ONE MONTH or THIRTY DAYS from the date of this letter, whichever is longer, to

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cancel the noted claims or take other appropriate action (37 CFR 1.144). Failure to take action during this period will be treated as authorization to cancel the noted claims by Examiner's Amendment and pass the case to issue. Extensions of time under 37 CFR 1.136(a) will not be permitted since this application will be passed to issue.

c. Claims 7-13 are objected to because:

the following term lacks proper antecedent basis:

“the desired image” in claim 7, step (a). Correction is required (for example, reference to “an image” in line 1, should be --a desired image--.

4. ***Allowable subject mater***

The following is an examiner's statement of reasons for allowance: Claims 7-13 have been found to be allowable over the prior art of record since while the prior art of record teaches a method of using multiple exposures of a micro-mirror array for controlling line edge position by averaging the exposures, the prior art of record, either alone or in combination, neither discloses nor makes obvious the combination of a method of forming an image having edge placement accuracy to a small fraction of a pixel using an image transducer having coarse pixels and comprising specific steps of “determining a proportion p of the number of exposed fined grid pixels making up the portion of the fine grid pattern formed in each coarse grid pixel”, “applying the proportion p to a number of pulse exposures...”, “creating n different binary patterns ...” and “imaging the n patterns in sequence by pulse-exposing an m^{th} pattern 2^{m-1} times for a total of $2^n - 1$ pulse exposures”, and satisfying condition, as recited in the instant claims.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. ***Prior Art Made of Record***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Johnson (U.S.Pat. 6,498,685), Sweatt et al (U.S.Pat. 6,060,224) and Mei et al (U.S.Pat. 6,509,955) disclose apparatus and method for maskless lithography and have been cited for technical background.

6. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

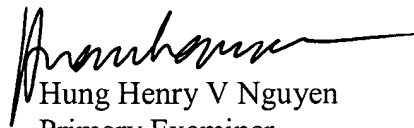
A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hung Henry V Nguyen
Primary Examiner
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hvn
3/22/04